

**ABSTRACT.**

The present invention relates to a process for the synthesis of oxandrolone from mestanolone. The process comprises the steps of: (a) oxidizing mestanolone to form 17 $\beta$ -hydroxy-17 $\alpha$ -methyl-5 $\alpha$ -androst-1-en-3-one; (b) hydroxylating the 17 $\beta$ -hydroxy-17 $\alpha$ -methyl-5 $\alpha$ -androst-1-en-3-one to form 1 $\alpha$ , 2 $\alpha$ , 17 $\beta$ -trihydroxy-17 $\alpha$ -methylandrostan-3-one; (c) cleaving the 1 $\alpha$ , 2 $\alpha$ , 17 $\beta$ -trihydroxy-17 $\alpha$ -methylandrostan-3-one to form 17 $\beta$ -hydroxy-17 $\alpha$ -methyl-1-oxo-1,2,-seco-A-nor-5 $\alpha$ -androstan-2-oic acid; and (d) reducing the 17 $\beta$ -hydroxy-17 $\alpha$ -methyl-1-oxo-1,2,-seco-A-nor-5 $\alpha$ -androstan-2-oic acid to form oxandrolone.

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